

ONE CYCLE CONTROL PFC BOOST CONVERTER INTEGRATED  
CIRCUIT WITH INRUSH CURRENT LIMITING, FAN MOTOR SPEED  
CONTROL AND HOUSEKEEPING POWER SUPPLY CONTROLLER

ABSTRACT OF THE DISCLOSURE

A power factor corrected boost converter circuit includes a rectifier connectable to an ac input and having a rectified dc output provided across a dc bus, an inductor having first and second terminals connected in one leg of the dc bus, an integrated circuit comprising a control circuit for controlling a switch, the integrated circuit including a housing enclosing the control circuit, the integrated circuit having a power terminal, a ground terminal, a first control input terminal coupled to an output of the converter circuit, and a second control input terminal coupled to a sensor for sensing current in the dc bus and further having an output terminal connected to the switch, a boost rectifier diode having a first terminal, the diode coupled to the inductor, and a storage capacitor connected to the diode. The control circuit comprises a one cycle control circuit having an integrator reset by a clock signal for each cycle of the clock signal. The circuit further includes any or all of an inrush current limiting circuit for limiting the current through the inductor to a value below a predetermined level, a fan motor speed controller and a housekeeping power supply controller.